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Analysis in Brief

Female Employment in the Core (Federal) Public Administration

by Katarzyna Naczk

Public Institutions Division
23th Floor, R.-H. Coats Building, Ottawa, K1A 0T6

Telephone: 1-800-263-1136

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Katarzyna Naczk

Review Committee: Catherine Boies, Peter Elliott, John Flanders, Penny Hope-Ross (Statistics Canada), and George Domaradzki (Canada Public Service Agency)

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National inquiries line: 1-800-263-1136
E-Mail inquiries: analysisinbrief-analyseenbref@statcan.ca

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Female Employment in the Core (Federal) Public Administration

Katarzyna Naczk, Public Institutions Division

Summary

This study is the second in a series that is profiling shifts during the past 11 years in what is known as Canada's "Core Public Administration" (CPA), the 178,000 or so federal public servants for whom the Treasury Board is the employer. This group of federal employees from the CPA represented 46.7% of total federal employment in 2006.[1]

The first article showed that, globally, the federal public service was smaller in 2006 than it was 11 years earlier.[2] It also showed the composition of the CPA has been changing in tune with the times. While there are fewer of them, CPA employees in general are more knowledge-based than they were 11 years ago and are older on average. In addition, there are proportionally more women.

This study uses data on the Core Public Administration to examine CPA trends in female employment, both globally and by occupational category groupings.

There are now more women than men in both knowledge-based occupations and those that are less knowledge-based occupations. The number of women within knowledge-based occupations in the CPA increased steadily between 1995 and 2006, while the number of men first declined, then rebounded. The number of less knowledge-based workers — both men and women — declined during this period. However, because men suffered a larger decline, the number of women surpassed those of men in 1998.

All groups of occupations that are qualified as knowledge-based showed an increase in female employment. The number of women in the computer systems group and in the executive group more than doubled between 1995 and 2006.

The number of women in the scientific and professional group nearly doubled. Moreover, the women in that group were the youngest of all the occupational groups in 2006, with only 38.5% of them aged 45 and over.

Among many explanations, these changes can be explained by the technological evolution of the working environment, which has had an impact on the federal government and the higher rate of participation of women in the labour force.

Contrary to the increase in number of knowledge-based workers, the number of less knowledge-based workers plunged by a third during the same time period.

Overall, the proportion of workers aged 45 and over — whether male or female, or whether knowledge-based or less-knowledge-based — increased significantly between 1995 and 2006.

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1. The Core Public Administration excludes the regular members, special constables and civilian members of the RCMP, regular and reserve members of the Canadian Forces and employees of separate agencies such as the Canada Revenue Agency. The CPA comprises roughly 89%-96% (depending on the year of study) of the federal public service once Canada Revenue Agency and Border Services Canada Agency are removed from the federal public service total.
2. See Katarzyna Naczk, "Employment Trends in the Federal Public Service", *Analysis in Brief*, Statistics Canada, Catalogue No. 11-621-XIE, March 2007, http://www.statcan.ca/english/research/11-621-MIE/11-621-MIE2007053.htm (accessed July 13, 2007).

Knowledge-based workers

Researchers have defined knowledge-based workers in many different ways. The definition for this study, inspired by one classification proposed by Lavoie and Roy, labels certain occupational categories as more knowledge-based.[3] These include: physicists; mathematicians; chemists; civil and mechanical engineers; biochemists; agriculturalists; ecologists; analysts; programmers; economists; accountants; lawyers, and artists.

The majority of the occupations listed above can in general be found in the following occupational categories defined in the CPA: scientific and professional; computer systems; program and administrative executive; and administrative and foreign service categories. Therefore, they will be referred to as the knowledge-based occupational categories.[4]

The less knowledge-based categories are made of the CPA's technical, operational and administrative support categories. More specifically, less knowledge-based occupational categories include groups such as clerical and regulatory, secretarial, stenographic and typing, engineering and scientific support, social science support, general technician, correctional services, general labour and trades, and general services.

Students and others not classified were ignored for the occupational analysis. They represent less than 4% of the CPA employees between 1995 and 2006.

For more details regarding the groupings see the data sources and methods section.

Core Public Administration employees more knowledge-based and older

By 2006, knowledge-based workers, such as scientific and professional workers, and those in computer systems, represented 57.8% of federal workers in the Core Public Administration. A decade earlier, they represented only 41.1%.

In terms of absolute numbers, an estimated 102,700 CPA employees worked in knowledge-based occupations in 2006, an overall increase of about 25,400 from the total of 77,300 in 1995. Their numbers actually declined between 1995 and 1998 to just over 69,000, and then rebounded rapidly.

In addition, while both men and women in the Canadian workforce are aging, the female cohort is aging more rapidly than the male cohort. This general trend was also occurring in the CPA, and, in fact, was more evident than for the Canadian workforce as a whole. Between 1995 and 2006, the average age of men in the CPA increased by 1.6 years, compared to 2.7 years among their female counterparts over the same period.

This divergence was even more evident among knowledge-based workers. For them, the average age of women increased by 2.7 years between 1995 and 2006, compared with only 0.7 years for men. Among less knowledge-based workers, the average age of women surged 3.1 years during this period while it increase by 2.7 years for men.

3. See Marie Lavoie and Richard Roy, "Employment in the Knowledge-Based Economy: A Growth Accounting Exercise for Canada," Human Resources Development Canada, Applied Research Branch, Strategic Policy, R98-8E, 1998.
4. The program and administrative group, as well as the computer systems group were created for the purpose of this study. Treasury Board defined these employees as originally belonging to the administrative and foreign service category.

Table 1 Average age of the Core Public Administration employees and employed Canadians, 1995 and 2006

	Core Public Administration		Employed Canadians	
Gender	**1995**	**2006**	**1995**	**2006**
Male	43.3	44.9	38.4	40.2
Female	40.5	43.2	37.2	39.5

Source: Statistics Canada, special tabulation, Public Institutions Division and Labour Force Survey.

Some explanations of these changes can be found in the following historical overview. The government was confronting fiscal deficit problems in the early to mid 1990s and partly as a result there were significant layoffs of federal employees.

The worldwide dotcom boom emerged in the late 1990s and the government put on a major push to adopt new, more efficient technologies. For example, the Canada On-Line project was initiated.

As the century turned, the baby boom generation began to reach retirement age. The many federal public servants that were hired during the government expansion of the late 1960s and 1970s — more of them being men than women — began to leave the public service.

Female labour force participation rates had risen steadily during much of the postwar period and in recent years female graduates began to account for more than half of the annual pool of university graduates, one of the major sources of recruitment for the government.

After the dip, federal hiring picked up in the late 1990s and into the new millennium as the fiscal situation improved and new priorities emerged.

Steady increase in number of women in all knowledge-based occupations

Along with the increase of CPA employees within the knowledge-based categories, there has also been a steady increase of women working in these occupations. In fact, there are now more women than men in both knowledge-based and less knowledge-based occupations; this mirrors the general increase in the number of women in the CPA between 1995 and 2006.

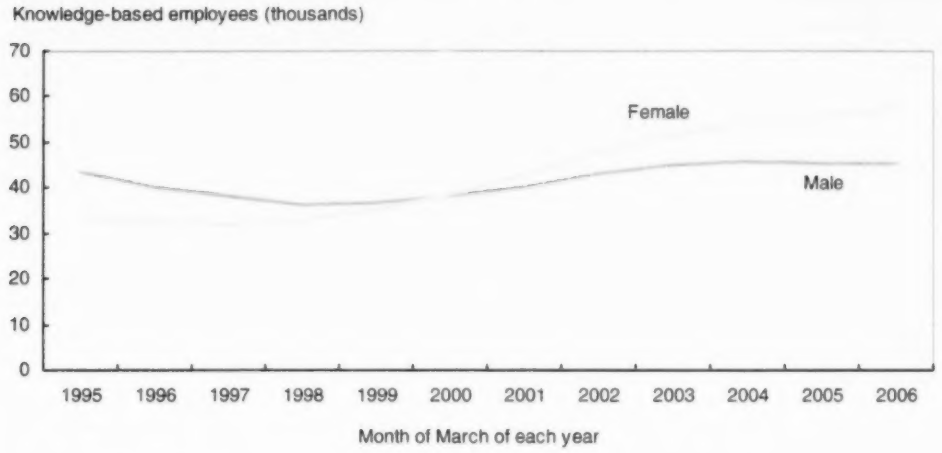
Women became a majority in knowledge-based occupations in 2000, when there were almost 38,600 women and just over 38,000 men.

The shift in the less knowledge-based category occurred three years earlier. In 1997, there were just under 42,700 women in less knowledge-based occupations and nearly 41,700 men.

In the case of knowledge-based workers, the shift was due to an increase in women while in the case of less knowledge-based workers, it was due to a decline in men in the CPA.

As the number of women increased in all categories of knowledge-based occupations, in 2006 women outnumbered men in two categories: the program and administrative group and the administrative and foreign services group.

Chart 1 Women in knowledge-based occupations have outnumbered men since 2000



Source: Statistics Canada, special tabulation, Public Institutions Division.

Table 2 Core Public Administration employees by gender and occupational categories, 1995 and 2006

Occupational category		1995			2006		
		Men	Women	Proportion of women	Men	Women	Proportion of women
		Count		%	Count		%
Knowledge-based	Administrative and foreign Service	8,667	7,219	45.4	8,528	11,846	58.1
	Computer systems	4,300	1,468	25.5	8,454	3,467	29.1
	Executive	2,870	690	19.4	2,746	1,738	38.8
	Program and administrative	13,800	17,880	56.4	11,002	28,957	72.5
	Scientific and professional	13,983	6,429	31.5	14,539	11,422	44.0
	Total	**43,620**	**33,686**	**43.6**	**45,269**	**57,430**	**55.9**
Less Knowledge-based	Administrative support	7,811	41,281	84.1	6,017	27,052	81.8
	Operational	26,940	4,341	13.9	16,149	3,760	18.9
	Technical	20,952	4,986	19.2	12,025	5,637	31.9
	Total	**55,703**	**50,608**	**47.6**	**34,191**	**36,449**	**51.6**
Total		**99,323**	**84,294**	**45.9**	**79,460**	**93,879**	**54.2**

Source: Statistics Canada, special tabulation, Public Institutions Division.

Program and administrative group: Female employees in the majority

The increase in knowledge-based occupations for women can be attributed largely to a big gain of female workers in the program and administrative group. Treasury Board definitions differ slightly from those of this study. Program and administrative group consists of program administrators (PM) and administrative services (AS), whereas the administrative and foreign service group consists of financial administration (FI), information services (IS), and foreign services (FS), to name a few. The administrative support group consists of such classifications as data processing (DA), clerical and regulatory (CR), and secretarial, stenographic, and typing (ST).

In 2006, just under 29,000 women belonged to this group, an increase of about 11,000 since 1995. In contrast, the number of men in this group declined from 13,800 in 1995 to just over 11,000 in 2006.

In 1995, within the knowledge-based category, the program and administrative group was the only one to have a majority of female employees. By 2006, women accounted for 72.5% of employees in this group, up from 56.4% in 1995.

This is the only occupational group in the knowledge-based category where men experienced a significant decline, while the number of women increased substantially. However, this reversal of the number of men in this group seems to have been accompanied by an aging of this occupational group. The proportion of women aged 45 and over jumped from only 33.3% in 1995 to 55.8% in 2006. At the same time, the proportion of men in this age group rose by fewer than 5 percentage points.

Table 3 Proportion of CPA workers aged 45 and over by gender and occupational group, 1995 and 2006

Occupational category		Men		Women	
		1995	2006	1995	2006
		% over 45 years old			
Knowledge-based	Administrative and foreign service	50.6	56.0	29.5	45.9
	Computer systems	26.6	38.8	15.5	42.8
	Executive	83.6	83.4	60.7	76.9
	Program and administrative	53.4	58.2	33.3	55.8
	Scientific and professional	51.5	55.0	30.8	38.5
	Total	**51.6**	**54.6**	**31.8**	**50.2**
Less Knowledge-based	Administrative support	30.7	45.6	32.8	52.2
	Operational	42.6	58.9	38.0	40.8
	Technical	44.6	62.2	21.0	44.0
	Total	**41.7**	**57.7**	**32.1**	**49.7**
Total		**46.0**	**56.0**	**32.0**	**50.0**

Source: Statistics Canada, special tabulation, Public Institutions Division.

Administrative and foreign service group: Second highest proportion of women

In 1995, the administrative and foreign service group was male-dominated, with 45.4% of employees being female. By 2006, 58.1% of employees were female, creating a second predominantly female group within the knowledge-based occupations category.

The administrative and foreign service group was among three groups in which the number of men remained about the same, while the number of women increased substantially. (The other two were the executive group, and the scientific and professional group.)

Following the general aging trend, the female cohort from the administrative and foreign service group aged more rapidly than the male cohort. Between 1995 and 2006, the proportion of women aged 45 and over increased by 16.4 percentage points.

Scientific and professional group: Women nearly double in number

While the number of men in the scientific and professional group remained about the same in 2006 as it was in 1995, the number of women almost doubled. During this period, the number of female employees in this group jumped from about 6,400 to over 11,400. Their proportion went from 31.5% to 44.0%.

The scientific and professional group was in fourth place out of the eight occupational groups in terms of number of female workers.

The scientific and professional group was somewhat different from the other groups in terms of the proportion of women in older age categories. Only 38.5% of the women in this group were aged 45 and over in 2006, the lowest percentage among all occupational groups. Moreover, between 1995 and 2006, this proportion increased only 7.7 percentage points. Over 55.0% of the men in this occupational group were aged 45 and over.

Computer systems group: Big gains among older women

The computer systems group was the only one where the numbers of both men and women increased significantly between 1995 and 2006. In fact, for both genders, the numbers doubled with a slight edge for women. Consequently, the proportion of women increased only slightly, from 25.5% in 1995 to 29.1% in 2006.

This group of workers is also unique with respect to aging. Between 1995 and 2006, the proportion of women aged 45 and over jumped by 27.3 percentage points. In 1995, women in this group were by far the youngest in the CPA, with only 15.5% of them aged 45 or over. In 2006, 42.8% of the women in computer systems were 45 and over.

Among men, those in this category were also the youngest in 1995, with only 26.6% aged 45 and over. By 2006, men in this category were still the youngest, even though their proportion had risen to 38.8%.

Executive group: Proportion of women doubled and the oldest group

The executive group showed the largest increase for knowledge-based occupations between 1995 and 2006 in the proportion of employees who were female. In 1995, about 19.4% of the employees were female; by 2006, this proportion had doubled to 38.8% but still remained the occupational group with the lowest female representation.

In terms of absolute numbers, the number of women nominated directors or above increased 2.5 fold during this period. In 1995, only 690 women headed a division or had higher responsibilities; but in 2006, almost 1,750 had reached that level.

Men and women in the executive group, by the nature of the job and the time it takes to have the experience and knowledge to get there, are clearly the older employees. In 2006, 76.9% of the women and 83.4% of the men were aged 45 and over. While the proportion for men aged 45 and over remained about the same as in 1995, that of women increased by over 16 percentage points.

Less knowledge-based occupations: Employment plunges by a third

The proportion of employment in the less knowledge-based occupational categories has declined since 1995. They are the group of workers who left the federal government en masse between 1995 and 1999.

Employment in the less knowledge-based occupational categories plunged by one-third, from just over 106,300 in 1995 to just over 70,600 in 2006.

Trends in employment in the CPA could partly be explained by a steady increase in occupations that rely on new technologies, those transformed by the use of computers, and a decrease in occupations which can be replaced by such technology. For instance, technologies, such as automated data capture, are being used to minimize the need for manual keying.

For the most part, the number of both men and women declined in the less knowledge-based occupations between 1995 and 2006. However, the number of women in the technical category increased slightly during this period. It had slightly more than 5,600 female employees in 2006, compared with just under 5,000 in 1995.

Consequently, women slightly outnumbered men in representation among less knowledge-based occupations in 2006 with 51.6%. However, in the administrative support group, they made up almost 81.8% of the staff.

Administrative support group: Clearly a predominantly female group

The administrative support group clearly outnumbered any other section of the less knowledge-based category. They also experienced a lost of 15,000 jobs between 1995 and 2006, the biggest decline of any group. It had the largest share of women, who accounted for 84.1% of employees in 1995 and 81.8% in 2006.

Employment declined among both men and women in this group between 1995 and 2006, but women were clearly hardest hit. They lost 14,000 jobs, compared to under 2,000 for men.

These large cuts had an important impact on the age structure in this category. The proportion of women aged 45 and over rose by 19.4 percentage points between 1995 and 2006, while it rose by almost 15 percentage points for men. By 2006, the majority of women were aged 45 and over in this occupational group.

Operational group: Small decline in number of women

While the number of men in the operational group fell by over 10,000 between 1995 and 2006, the number of women dropped by only 600. Consequently, the proportion of women increased from 13.9% to 18.9%.

The proportion of women in the operational group who were aged 45 and over showed the lowest increase, only 2.8 percentage points, between 1995 and 2006.

In 2006, only 40.8% of the women were in that age group, making it the second youngest of the eight occupational groups.

Technical group: only less knowledge-based group to increase for women

The only employees in the less knowledge-based category to increase in number between 1995 and 2006 were female technicians. The gain was modest, with just over 600 jobs.

At the same time, the number of male technicians declined. As a result, in 2006, 31.9% of the technicians were women, compared with only 19.2% in 1995.

The male technical group was the oldest among less knowledge-based workers, and only behind the executive group among all male workers in the CPA. In 2006, 62.2% of them were aged 45 and over.

Female technicians appeared to be much younger than their male counterparts. In 2006, only 44.0% of them were aged 45 or over, although this is more than double the proportion of 21.0% in 1995.

Data sources and methods

The Core (federal) Public Administration (CPA) includes employees that work in the core occupational groups of all departments listed in Schedule 1 and Schedule IV of the Financial Administration Act (FAA), as well as the ministerial staff, deputy ministers, Governor/Order in Council appointees, judges and students affiliated with these departments.

Classification into occupational categories is the main focus of this paper and the vast majority of CPA employees can be classified using the CPA's current classification standards. Those in the CPA not classified under these standards are placed into the category "Other or Student," which represents less than 4% of the total employment covered.

The CPA comprises roughly 89%-96% (depending on the year of study) of the federal public service once Canada Revenue Agency and Border Services Canada Agency are removed from the federal public service total. The federal public service consists of departments and agencies named in Schedules I, IV and V of the FAA. It does not include the RCMP, organizations classified as "Non-commercial and other," or the Canadian Forces.

For comparative purposes, the Canada Revenue Agency (CRA) data were removed from 1995 to 1999 as the CRA became a separate agency in November 1999 (then referred to as the Canada Customs and Revenue Agency). The departure of the CRA from the CPA resulted in a loss of approximately 40,000 employees. Failure to remove this data would have shown a false drop in the number of Core (federal) Public Administration employees between 1999 and 2000, when in actuality there is an increase. For similar reasons, Canada Border Services Agency (BSF) data were removed for 2005 and 2006.

Data on the CPA and occupational categories were obtained using the Incumbent File administered by the Public Service Human Resources Management Agency of Canada. Data from the month of March of every year under study were used as this month coincides with the end of the fiscal year and is known to be a stable month in terms of employment data.

Regrouping into either the knowledge-based or less knowledge-based category was done to the best ability based on occupational category as information such as level of education was not available. National Occupation Codes (NOC) were available for data in 2005 and 2006 and were used to support the choice of grouping into either knowledge-based or less knowledge-based categories. Occupational groups that were predominantly skill level A (require a university degree) were classified as knowledge-based and those predominately skill level C (one to four years of secondary school education) or below were classified as less knowledge-based. Groups falling into skill level B were grouped according to the education requirements of the specific code and as such were classified as either knowledge-based or less knowledge-based. It is acknowledged that there is a mixture of knowledge-based and less knowledge-based occupations within each category; however classification was based on majority.

Limitations of the data involved missing information with respect to gender, age and employee classification. Missing data affected less than 4% of the records, and imputations were performed to substitute most of this information.